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| 10/815,040 | 03/31/2004 | Martin Spahn | P04,0102 | 7823 |
| 26574 | 7590 | 06/01/2005 | EXAMINER KIKNADZE, IRAKLI | |
| SCHIFF HARDIN, LLP PATENT DEPARTMENT 6600 SEARS TOWER CHICAGO, IL 60606-6473 | | | ART UNIT 2882 | PAPER NUMBER |

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/815,040

Applicant(s)

SPAHN, MARTIN

Examiner

Irakli Kiknadze

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2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claims 1-5, 7 and 12 objected to because of the following informalities:
claim 1, line 6; claim 2, line 2; claim 3, line 2; claim 4, line 1+; claim 7, line 1+ and claim 12, line 2+; recites the limitation " said x-ray detector". There is insufficient antecedent basis for this limitation in the claim. Perhaps, in claim 1, line 4 " a radiation detector " should read as – an x-ray detector --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Verdonick et al. (US Patent Application Publication US 2002/0054662 A1).

With respect to claim 1, Verdonick teaches a method for generating an x-ray exposure of an examination subject (12) extending in a longitudinal direction and

exhibiting a curved geometry, in a projection direction perpendicular to the longitudinal direction, comprising the steps of:

disposing an x-ray source (1) and an x-ray detector (2) respectively at opposite sides of the examination subject; moving the x-ray source (1) and the x-ray detector (2) in coordination with each other in the longitudinal direction along a curved path substantially corresponding to the curved geometry of the subject:

at each of a plurality of successive positions along the curved path, activating the x-ray source (1) to generate a partial exposure of the subject, thereby obtaining a plurality of partial exposures: and combining the plurality of partial exposures to form an overall x-ray exposure of the curved geometry of the subject (Figs. 1-5; [0031], [0032], [0034], [0038] and [0043]).

With respect to claim 2, Verdonick teaches that at each of the positions, the x-ray source and the x-ray detector is aligned with each other and with respect a portion of the subject to be acquired in the partial exposure at the position, for causing a projection direction associated with the partial exposure at that position to be substantially at a right angle relative to the portion (Figs. 3 and 5; [0037]).

With respect to claim 3, Verdonick teaches moving each of the x-ray source (1) and the x-ray detector (2) along respective curves corresponding to the curved geometry (Figs. 1-5; [0031], [0032], [0034], [0038] and [0043]).

With respect to claims 4-6, Verdonick teaches that the x-ray detector has a narrow detector surface in the longitudinal direction to detect a certain slice of the subject or a projection image from a certain direction ([0033]).

With respect to claims 7-9, Verdonick teaches generating a customized curve set, embodying the curved path for the x-ray source and the x-ray detector, for the examination subject dependent on body parameter of the examination subject; classifying the body parameters of the examination subject as representing an examination subject type from among a plurality of examination subject types; providing a standardized curved path; and scaling the standardized curved path dependent on the examination subject ([0037]-[0039] and [0043]).

With respect to claim 10, Verdonick teaches that the curved geometry is formed by a spinal column of the examination subject, and comprising moving the x-ray source and the x-ray detector along the curved path corresponding to the spinal column ([0037]-[0039] and [0043]).

With respect to claim 11, Verdonick teaches determining external body dimensions of the examination subject, determining a length of the spinal column and determine the curved path for moving the x-ray source and the x-ray detector (see abstract; [0037]-[0039] and [0043]).

With respect to claim 12, Verdonick teaches obtaining a reference exposure of the examination subject, before moving the x-ray source and the x-ray detector along the curved path, with the examination subject lying substantially parallel to the longitudinal direction and substantially perpendicular to the projection direction, and obtaining the external body dimensions from the reference x-ray exposure ([0037]-[0039] and [0043]).

With respect to claim 13, Verdonick teaches an x-ray system for producing an x-ray exposure of an examination subject extending in a longitudinal direction and exhibiting a curved geometry in a projection direction perpendicular to the longitudinal direction, comprising: an x-ray source (1) and an x-ray detector (2) adapted to be disposed on opposite sides, respectively, of the examination subject (12); a control device (17); a mounting arrangement (3; 4; 5), operated by the control device (17), to which the x-ray source (1) and the x-ray detector (2) are attached; and the control device operating the mounting arrangement for moving the x-ray source and the x-ray detector in the longitudinal direction along a curved path substantially adapted to the curved geometry, for producing a plurality of partial exposures, in the projection direction, respectively at a plurality of positions along the curved path; and an image computer, supplied with the plurality of partial exposures for generating an overall exposure of the curved geometry of the examination subject from the partial exposures (Figs. 1-5; [0031], [0032], [0034], [0038], [0043 and [0044]) .

With respect to claims 14 and 15, Verdonick teaches that the image computer directly combines the plurality of partial exposures to form the overall image (see abstract and claims 1 and 9).

With respect to claim 16, Verdonick teaches that the x-ray source (1) and the x-ray detector (2) are mounted in the mounting arrangement for allowing each of the x-ray source and the x-ray detector to be pivoted around an axis perpendicular to the longitudinal direction and perpendicular to the projection direction ([0035], [0037]).

With respect to claim 17, Verdonick teaches that the mounting arrangement allows movement of the x-ray source (1) and the x-ray detector in the projection direction ([0031]-[0034]).

With respect to claim 18, Verdonick teaches that the control device (17) automatically moves the x-ray source and the x-ray detector along a freely selectable curve, forming the curved path ([0034]).

With respect to claim 19, Verdonick teaches that the control device (17) controls the mounting arrangement to position the x-ray source and the x-ray detector at each of the positions along the curved path, to align the x-ray source (1) and x-ray detector (2) and a portion of the examination subject to be imaged in the partial exposure at that position, for causing a partial exposure projection direction for the partial exposure to be acquired at that position to be substantially at a right angle to the portion ([0037]).

With respect to claims 20 and 21, Verdonick teaches that x-ray detector has an active detector surface that is narrow in the longitudinal direction to detect a certain slice of the subject or a projection image from a certain direction ([0033]).

With respect to claim 22, Verdonick teaches that from the projection lines (188-191) a scanning trajectory (23) is generated along which the source and detector are moved while acquiring projection images of the spinal column (20) requires some storage comprising a memory containing a curve set, including the curved path, customized for the examination subject ([0043]).

With respect to claim 23, Verdonick teaches that the control device (17) generates the scanning trajectory (23) requiring some storage comprises a memory,

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containing: a plurality of curve sets, each including a different curved path respectively for a plurality of deferent examination subject types, and wherein the control device selects one of the curve sets from the memory, for an examination subject type most closely corresponding to the examination subject, for operating the mounting arrangement for moving the x-ray source (1) and the x-ray (2) detector along the curved path in the selected curve set for producing the plurality of partial exposures (see abstract; [0034], [0043] and [0044]).

With respect to claim 24, Verdonick teaches that control device (17) generates the scanning trajectory (23) requiring some storage comprising a memory generating the scanning trajectory (23), containing a standardized curve set, and wherein the control device is supplied with data representing a physical measurement of the examination subject and scales the standardized curve set dependent on the data to generate the curved path for moving the x-ray source (1) and the x-ray detector (2) for producing the plurality of partial exposures (see abstract; [0034], [0043] and [0044]).

With respect to claim 25, Verdonick teaches that the control device operates the mounting arrangement and the x-ray source and the x-ray detector for generating a reference x-ray exposure of the examination subject lying substantially parallel to the longitudinal direction and substantially perpendicular to the projection direction, before operating the mounting arrangement for moving the x-ray source and the x-ray detector along the curved path, and wherein the control device obtains the data from the reference x-ray exposure ([0037]).

Conclusion


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00- 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli Kiknadze
May 23, 2005

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EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER